0060204

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

02-WMD-0269

AUG 22 2002

Ms. Jane A. Hedges
Cleanup Section Manager
Nuclear Waste Programs
State of Washington
Department of Ecology
1315 W. Fourth Avenue
Kennewick, Washington 99336

Dear Ms. Hedges:

STATUS OF GROUNDWATER MONITORING AT THE THE LOW-LEVEL BURIAL GROUND (LLBG)

This letter is to apprise you of the groundwater-monitoring status at the LLBG. This correspondence is in lieu of submission of a formal change notice to document changes in the facility's Resource Conservation and Recovery Act (RCRA) groundwater monitoring network. Change notices will be used when final status monitoring is approved. Previous modifications to the monitoring system have been documented in Engineering Change Notices and Interim Change Notices to WHC-SD-EN-AP-015. A RCRA part B Permit application has been submitted to monitor the LLBG under final status regulations.

Several of the facility's groundwater- monitoring network wells have gone dry in the past year and are therefore no longer utilized to meet the RCRA requirements. Continuing changes in the groundwater system are expected to cause removal of additional wells in the facility's network.

Highlights of recent changes in the monitoring network are as follows:

LLWMA-1

No recent changes have been made to LLWMA-1 monitoring network. Wells in this network are expected to go dry in the future, groundwater flow directions are uncertain due to the flat gradient, and changes in flow direction are expected to occur as the water table continues to decline.

LLWMA-2

Several wells in the LLWMA-2 have gone dry since the RCRA monitoring for the facility was initiated. Well 299-E34-11, located on the west side of the WMA and last sampled in October 2001, is no longer being used. The basalt is present above the water table under much of the WMA and monitoring of the uppermost aquifer at this well location is no longer possible.

LLWMA-3

Seven wells monitoring LLWMA-3 have gone dry since the initiation of RCRA monitoring and several more wells are expected to go dry in the future. Additional wells are proposed in the final status permit application. The seven following wells no longer utilized in the RCRA monitoring network are: 299-W6-2, 299-W7-2, 299-W7-9, 299-W7-41, 299-W7-11, and 299-W9-1. These changes have not been documented in interim change notices to the monitoring plan.

LLWMA-4

Nine monitoring wells in the LLWMA-4 network have gone dry since the initiation of RCRA monitoring. Modifications were made to this network in 1998 to address changes in flow direction. A total of ten monitoring wells have been removed from this network due to a decline in the water table and changes in flow direction since initiation of RCRA monitoring`.

The attached tables and figures describe the monitoring well status at the LLBG. The constituents and the extent for groundwater contamination is described in the annual Site Groundwater Report.

If you have any questions, please contact me, or your staff may contact Marvin Furman, Waste Management Division, on (509) 373-9630.

Sincerely,

John G. Morse, Program Manager
Groundwater Protection Program

WMD:MJF

Attachments

cc w/attachs:
S. P. Luttrell, PNNL

Low Level Waste Management Area 1 Well Status

Well Name	Location	Network Status (as of 7/30/02)	Date Last Sampled (as of 7/30/02)
299-E28-26	Upgradient	Semiannual	6/6/02
299-E28-27	Upgradient	Semiannual	6/6/02
299-E28-28	Upgradient	Semiannual	6/6/02
299-E32-2	Downgradient	Semiannual	6/10/02
299-E32-3	Downgradient	Semiannual	6/6/02
299-E32-4	Upgradient	Semiannual	6/6/02
299-E32-5	Downgradient	Semiannual	6/6/02
299-E32-6	Downgradient	Semiannual	6/10/02
299-E32-7	Downgradient	Semiannual	6/10/02
299-E32-8	Downgradient	Semiannual	6/10/02
299-E32-9	Downgradient	Semiannual	6/10/02
299-E32-10	Downgradient	Semiannual	6/6/02
299-E33-28	Upgradient	Semiannual	6/6/02
299-E33-29	Upgradient	Semiannual	6/6/02
299-E33-30	Downgradient	Semiannual	6/10/02
299-E33-34	Downgradient	Semiannual	6/10/02
299-E33-35	Upgradient	Semiannual	6/6/02

Low Level Waste Management Area 2 Well Status

Well Name	Location	Network Status (as of 7/30/02)	Date Last Sampled (as of 7/30/02)
299-E27-8	Downgradient	Semiannual	4/5/02
299-E27-9	Downgradient	Semiannual	4/5/02
299-E27-10	Upgradient	Semiannual	5/1/02
299-E27-11	Downgradient	Semiannual	4/5/02
299-E27-17	Downgradient	Semiannual	4/5/02
299-E34-2	Downgradient	Semiannual	4/8/02
299-E34-3	Upgradient	Semiannual	5/1/02
299-E34-4	Downgradient	Dry -- not in network	6/1/92
299-E34-5	Downgradient	Semiannual -- supplemental*	4/9/02
299-E34-6	Downgradient	Dry -- not in network	10/9/92
299-E34-7	Upgradient	Semiannual	4/8/02
299-E34-9	Downgradient	Semiannual	4/8/02
299-E34-10	Downgradient	Semiannual	4/8/02
299-E34-11	***Downgradient***	***Dry -- not in network***	***10/19/01***
299-E34-12	Downgradient	Semiannual	4/8/02
299-E35-1	Upgradient	Dry -- not in network	4/1/92

* Supplemental wells are not included in statistical analysis

Wells listed in ***bold italics*** have changed in status since most recent Interim Change Notice.

Low Level Waste Management Area 3 Well Status

Well Name	Location	Network Status (as of 7/30/02)	Date Last Sampled (as of 7/30/02)
299-W6-2	***Downgradient***	***Dry -- not in network***	***10/6/00***
299-W7-1	Downgradient	Semiannual	3/19/02
299-W7-2	***Downgradient***	***Dry -- not in network***	***11/19/97***
299-W7-3	Deep/Downgradient	Semiannual -- supplemental*	3/13/02
299-W7-4	Downgradient	Semiannual	3/22/02
299-W7-5	Downgradient	Semiannual	9/18/01***
299-W7-6	***Downgradient***	***Dry -- not in network***	***3/14/01****
299-W7-7	Downgradient	Semiannual	3/13/02
299-W7-8	Downgradient	Semiannual	3/13/02
299-W7-9	***Downgradient***	***Dry -- not in network***	***3/12/01****
299-W7-10	***Downgradient***	***Dry -- not in network***	***4/18/00***
299-W7-11	***Downgradient***	***Dry -- not in network***	***9/19/01****
299-W7-12	Downgradient	Semiannual	3/13/02
299-W8-1	Downgradient	Semiannual	3/14/02
299-W9-1	***Upgradient***	***Dry -- not in network***	***4/4/00***
299-W10-13	Upgradient	Semiannual	3/12/02
299-W10-14	Deep/Upgradient	Semiannual -- supplemental*	3/12/02
299-W10-19	Upgradient	Semiannual	3/12/02
299-W10-20	Upgradient	Semiannual	3/12/02****
299-W10-21	Upgradient	Semiannual	3/13/02

* Supplemental wells are not included in statistical analysis
** Sampled in January 2002 for tritium only with Kabis sampler.
*** Not sampled in March 2002 because pump needs to be lowered.
**** Did not produce sufficient water in March 2002 to collect all samples.

Wells listed in ***bold italics*** have changed in status since most recent Interim Change Notice.

Low Level Waste Management Area 4 Well Status

Well Name	Location	Network Status (as of 7/30/02)	Date Last Sampled (as of 7/30/02)
299-W15-15	Upgradient	Semiannual	4/9/02
299-W15-16	Downgradient	Semiannual	1/2/02
299-W15-17	Deep/Downgradient	Semiannual -- supplemental*	7/10/02
299-W15-18	***Downgradient***	***Dry -- not in network***	***1/29/01***
299-W15-19	Downgradient	Dry -- not in network	11/24/97
299-W15-20	Upgradient	Dry -- not in network	7/9/97
299-W15-23	Upgradient	Dry -- not in network	1/21/97
299-W15-24	Upgradient	Dry -- not in network	7/10/97
299-W18-21	Upgradient	Semiannual	1/2/02
299-W18-22	Deep/Upgradient	Semiannual -- supplemental*	7/16/02
299-W18-23	Upgradient	Semiannual	7/10/02
299-W18-24	Downgradient	Semiannual	1/8/02
299-W18-26	***Upgradient***	***Dry -- not in network***	***7/13/99***
299-W18-27	Upgradient	Redundant -- not in network	4/1/02
299-W18-28	Upgradient	Dry -- not in network	7/14/98
299-W18-29	Perched/Downgradient	Dry -- not in network	5/26/94
299-W18-32	Downgradient	Dry -- not in network	1/20/99

* Supplemental wells are not included in statistical analysis

Wells listed in ***bold italics*** have changed in status since most recent Interim Change Notice.

Groundwater Monitoring Network for Low-Level Waste Management Area 1

Well Name	Date Drilled	Coordinates Lambert	Screened Interval (m) NAVD88	Water Level (m) NAVD88 (Mar 2002)	Water Remaining, (m) (Mar 2002)
299-E28-26	1987	572941.553 137024.016	118.8 - 124.9	122.40	3.6
299-E28-27	1987	573226.784 137070.063	119.5 - 125.6	122.37	2.9
299-E28-28	1990	572804.351 137108.259	119.5 - 125.6	122.36	2.9
299-E32-2	1987	572648.020 137467.509	120.0 - 126.1	122.33	2.3
299-E32-3	1987	572600.614 137383.996	119.7 - 125.8	122.36	2.7
299-E32-4	1987	572603.743 137187.218	118.9 - 125.0	122.33	3.4
299-E32-5	1989	572599.697 137285.125	119.2 - 125.6	122.36	3.2
299-E32-6	1991	572600.400 137515.100	119.4 - 125.8	122.35	3.0
299-E32-7	1991	572600.380 137647.050	119.4 - 125.8	122.35	3.0
299-E32-8	1991	572663.390 137741.470	118.9 - 125.2	122.33	3.4
299-E32-9	1991	572795.110 137741.690	119.4 - 125.7	122.35	3.0
299-E32-10	1992	572951.130 137741.690	119.8 - 125.9	122.36	2.6
299-E33-28	1987	573226.365 137375.019	119.0 - 125.1	122.38	3.4
299-E33-29	1987	573227.858 137231.193	117.5 - 123.6	122.36	4.9
299-E33-30	1987	572923.796 137467.779	119.0 - 125.1	122.35	3.4
299-E33-34	1990	573104.458 137740.427	120.3 - 126.3	122.38	2.1
299-E33-35	1990	573220.798 137605.098	120.2 - 126.6	122.35	2.2

All wells constructed to standards of WAC 173-160 resource protection wells. Stainless-steel casing and screen; sand pack around screen or "channel pack" screen; annular seal around casing.

Bold italics indicate upgradient wells.

NAVD88 = North American Vertical Datum of 1988.

Groundwater Monitoring Network for Low-Level Waste Management Area 2

Well Name	Date Drilled	Coordinates Lambert	Screened Interval (m) NAVD88	Water Level (m) NAVD88 (Mar 2002)	Water Remaining (m) (Mar 2002)
299-E27-8	1987	574759.080 137044.178	120.7 - 126.8	122.39	2.8
299-E27-9	1987	574917.649 137040.904	119.4 - 125.3	122.40	3.8
299-E27-10	1987	575100.298 137052.481	120.0 - 126.2	122.41	2.5
299-E27-11	1989	574652.930 137062.736	119.6 - 126.0	122.35	2.8
299-E27-17	1991	574547.310 137122.010	119.0 - 125.4	122.39	3.4
299-E34-2	1987	574634.810 137220.694	119.7 - 125.8	122.39	2.8
299-E34-3	1987	575110.254 137301.437	121.9 - 128.0	122.50 (Nov. 2001)	0.57 (Nov. 2001)
299-E34-4	1987	574825.054 137743.877	125.5 - 131.6	Dry	Dry
299-E34-5	1987	574643.809 137743.332	122.6 - 128.6	123.05	0.58
299-E34-6	1987	574462.332 137740.727	123.5 - 129.6	Dry	Dry
299-E34-7	1989	575274.184 137357.745	121.9 - 125.2	122.34	0.5
299-E34-9	1991	574186.020 137429.820	120.6 - 127.0	122.36	1.9
299-E34-10	1991	574284.400 137224.570	120.1 - 126.5	122.38	2.4
299-E34-11	1992	574176.160 137581.780	122.0 - 125.1	122.38	0.4
299-E34-12	1992	574411.004 137168.544	120.3 - 126.6	122.31	2.1
299-E35-1	1989	575459.729 137464.956	124.0 - 127.2	Dry.	Dry

All wells constructed to standards of WAC 173-160 resource protection wells. Stainless-steel casing and screen; sand pack around screen or "channel pack" screen; annular seal around casing. See Appendix C for more information.

Bold italics indicate upgradient wells.

Shaded wells are dry.

NAVD88 = North American Vertical Datum of 1988; LLWMA = low-level waste management area.

Groundwater Monitoring Network for Low-Level Waste Management Area 3

Well Name	Date drilled	Coordinates Lambert (East/North)	Screened Interval, m NAVD88	Water Level (m) NAVD88 (Mar 2002)	Water Remaining (m) (Mar 2002)
299-W6-2	1987	566938.399 137351.002	135.9 – 138.9	Dry	Dry
299-W7-1	1987	565932.047 137647.125	136.3 - 142.7	137.80	1.5
299-W7-2	1987	566302.803 137638.502	138.6 – 141.7	Dry	Dry
299-W7-3	1987	566292.031 137638.641	63.2 - 69.6	137.14	73.9
299-W7-4	1987	566408.771 137308.243	134.0 - 143.1	137.41	3.4
299-W7-5	1987	566476.026 137635.688	136.0 - 142.3	137.51	1.2
299-W7-6	1987	566658.078 137636.314	137.4 – 143.5	Dry	Dry
299-W7-7	1989	566566.749 137636.075	136.7 - 142.8	137.11	0.4
299-W7-8	1989	566761.393 137636.665	136.4 - 142.7	136.68 (9/01)	0.3 (9/01)
299-W7-9	1990	565844.438 137646.402	137.7 – 144.0	Dry	Dry
299-W7-10	1990	566858.212 137457.533	137.0 – 143.2	Dry	Dry
299-W7-11	1991	566186.200 137636.000	137.0 – 143.3	Dry	Dry
299-W7-12	1991	566040.800 137636.300	136.6 - 142.9	137.72	1.1
299-W8-1	1987	565749.422 137646.639	136.1 - 142.3	138.03	1.9
299-W9-1	1987	565657.655 137023.769	138.1 – 144.2	Dry	Dry
299W10-13	1987	566027.407 136606.806	138.1 – 144.2	Dry	Dry
299-W10-14	1987	566017.194 136608.895	77.3 - 83.4	138.01	60.7
299-W10-19	1992	566346.190 137037.140	136.9 - 143.0	137.68	0.8
299-W10-20	1993	566249.695 136866.607	136.1 - 142.2	137.86	1.8
299-W10-21	1993	566583.991 137154.721	136.0 - 142.1	137.53	1.5

All wells constructed to standards of WAC 173-160 resource protection wells. Existing wells have stainless-steel casing and screen; sand pack around screen or "channel pack" screen; annular seal around casing.

Bold italics indicate upgradient well.

Shaded wells are dry.

NAVD88 = North American Vertical Datum of 1988.

Table 5-10. Groundwater Monitoring Network for Low-Level Waste Management Area 4.

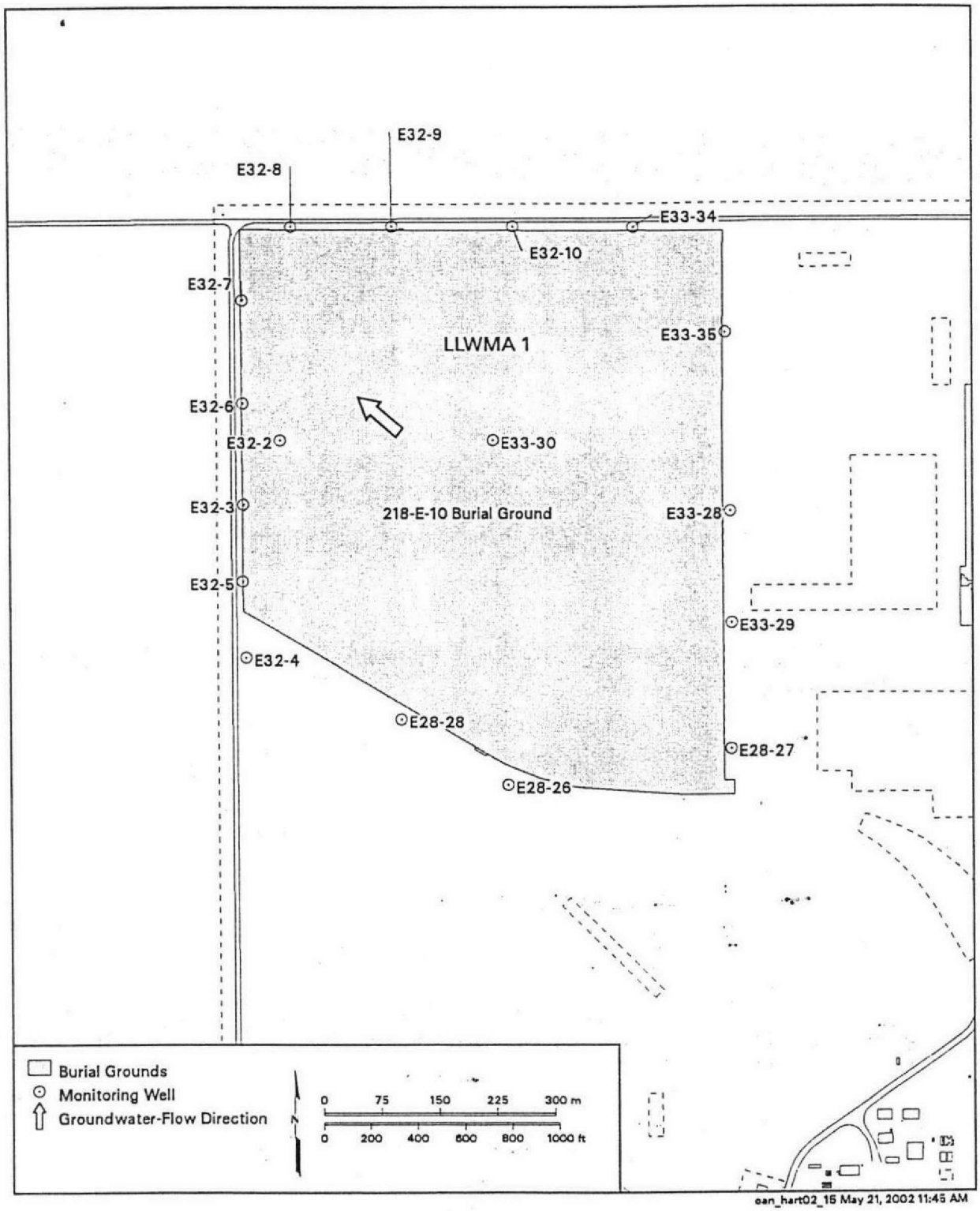
Well Name	Date Drilled	Coordinates Lambert (East/North)	Screened Interval, m NAVD88	Water Level, m NAVD88 (Mar 2002)	Water Remaining (m) (Mar 2002)
299-W15-15	1987	566088.805 135751.493	136.0 - 145.2	138.32	2.3
299-W15-16	1987	566307.006 135733.625	136.6 - 145.8	137.70	1.1
299-W15-17	1987	566306.891 135718.958	77.4 - 80.5	137.72	60.3
299-W15-18	1987	566308.661 135561.762	136.9 – 146.0	Dry	Dry
299-W15-19	1989	566189.082 135968.695	139.4 – 145.8	Dry	Dry
299-W15-20	1989	566082.884 135964.193	139.6 – 146.0	Dry	Dry
299-W15-23	1990	566083.652 135858.130	140.4 – 146.7	Dry	Dry
299-W15-24	1989	566091.133 135605.736	139.9 – 146.3	Dry	Dry
299-W18-21	1987	566097.700 134978.692	135.5 - 144.7	138.44	2.9
299-W18-22	1987	566088.632 134990.157	67.9 - 77.4	138.27	70.4
299-W18-23	1987	566084.533 135342.438	136.3 - 145.7	138.49	2.2
299-W18-24	1987	566370.843 135346.316	137.2 - 146.4	137.78	0.6
299-W18-26	1989	566091.276 135491.707	139.0 – 145.5	Dry	Dry
299-W18-27	1991	566090.189 135226.541	137.8 – 144.3		
299-W18-28	1991	566092.569 135106.788	137.3 – 143.7	Dry	Dry
299-W18-29	1991	566561.200 135028.400	164.3 – 169.2	Dry	Dry
299-W18-32	1992	566515.584 134975.641	138.7 – 144.9	Dry	Dry

All wells constructed to standards of WAC 173-160 resource protection wells. Existing wells have stainless-steel casing and screen; sand pack around screen or "channel pack" screen; annular seal around casing.

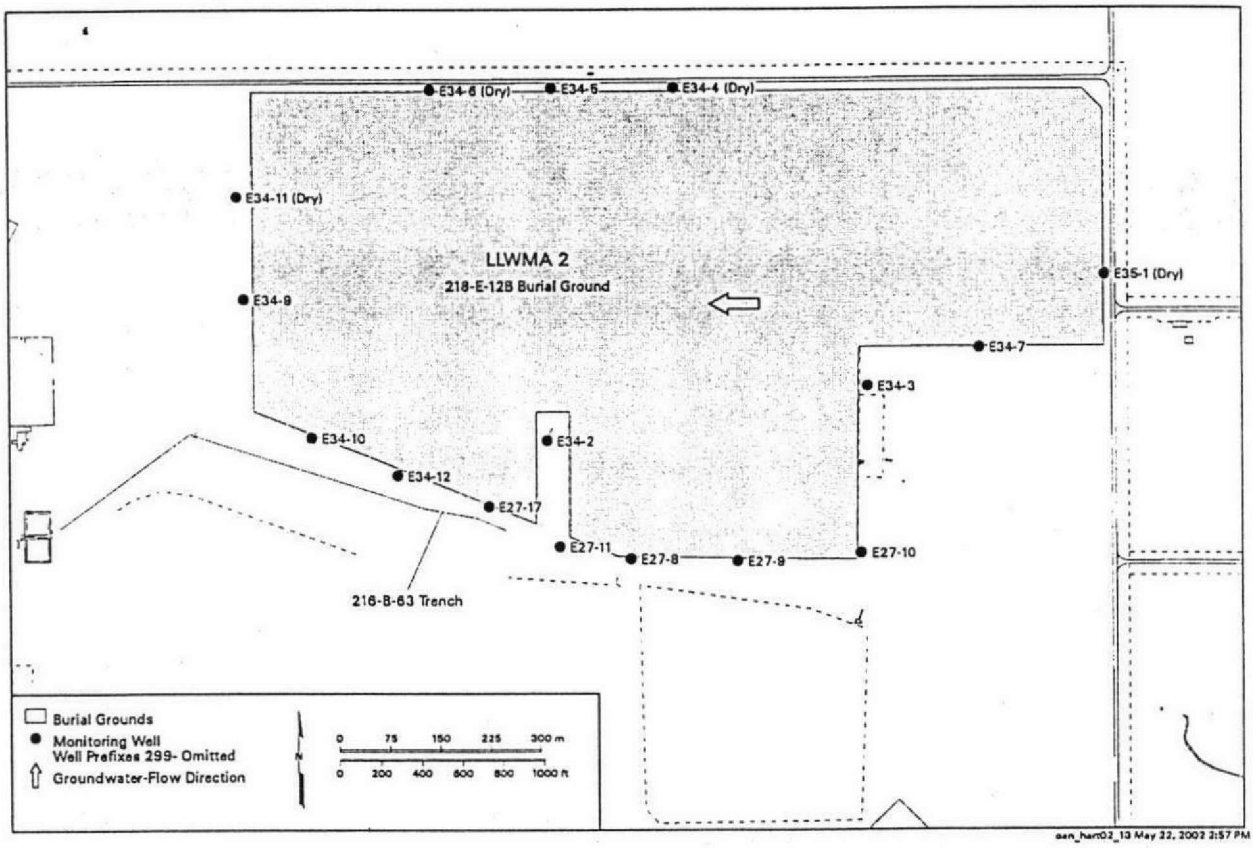
Bold italics indicate upgradient wells.

Shaded wells are dry.

NAVD88 = North American Vertical Datum of 1988.



Interim-status Groundwater Monitoring Network for Low-Level Waste Management Area 1.



Interim-status Groundwater Monitoring Network for Low-Level Waste Management Area 2.